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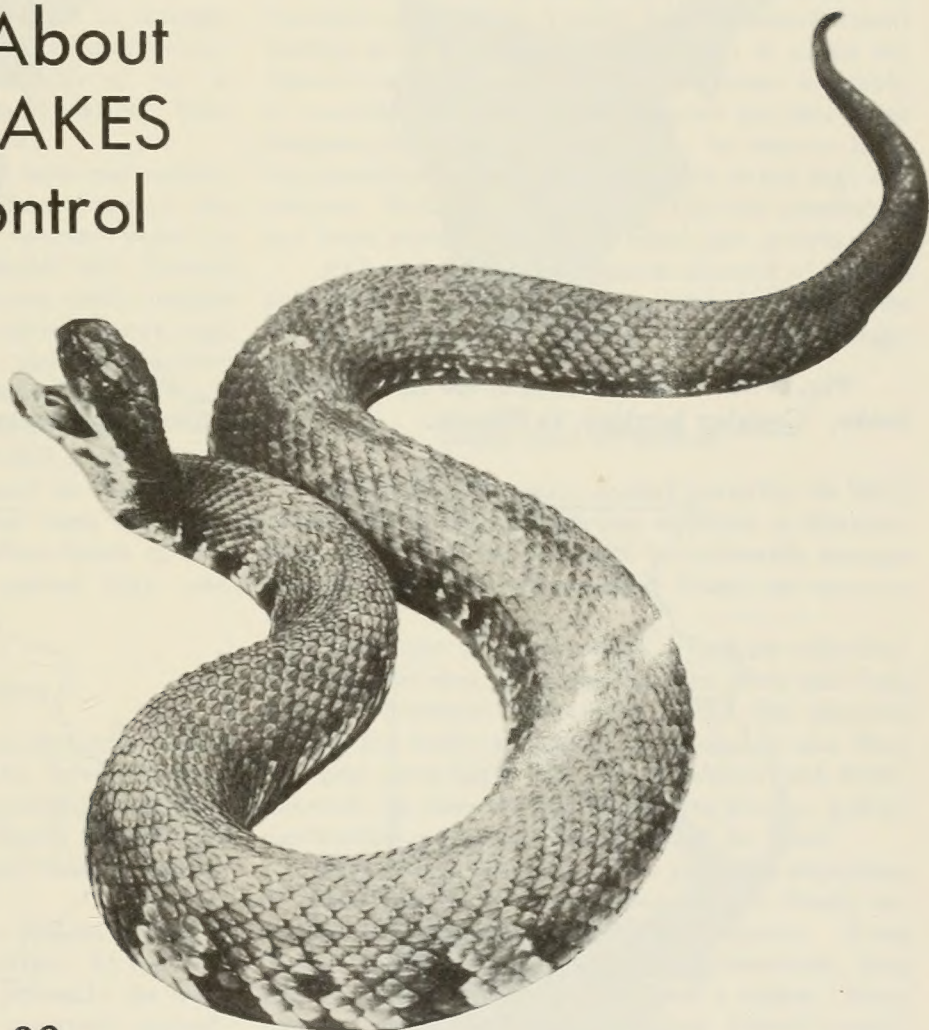
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Some Facts About ILLINOIS SNAKES and Their Control

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Fig. 1 - Known distribution of the timber rattlesnake, Crotalus horridus, in Illinois.

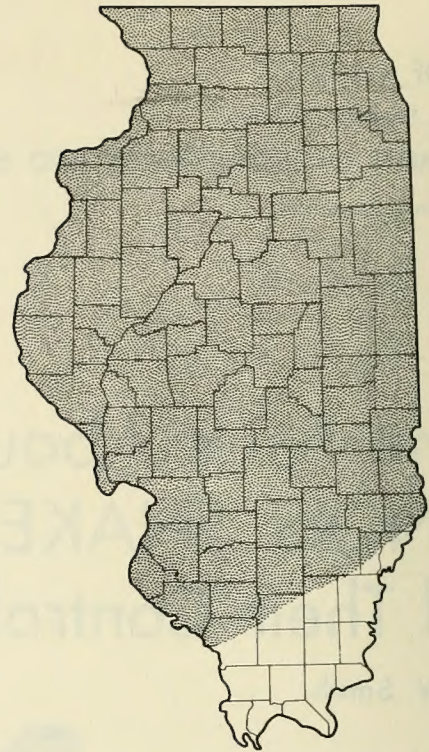


Fig. 2 - Known distribution of the massasauga rattlesnake, Sistrurus catenatus, in Illinois.

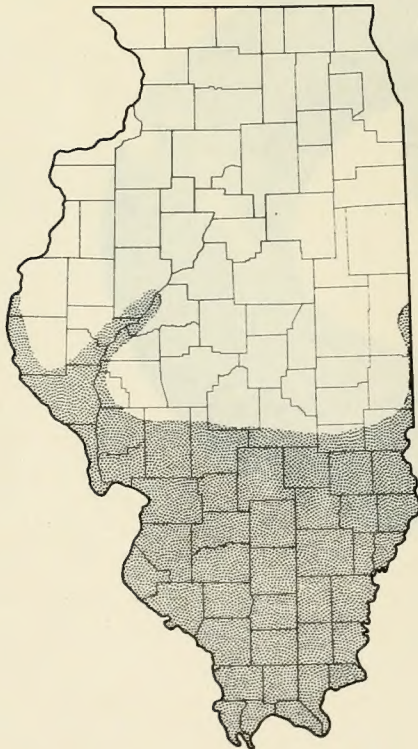


Fig. 3 - Known distribution of the copperhead, Agkistrodon contortrix, in Illinois.



Fig. 4 - Known distribution of the cottonmouth, Agkistrodon piscivorus, in Illinois.

Some Facts About ILLINOIS SNAKES and Their Control

PHILIP W. SMITH, Assistant Taxonomist, Natural History Survey Division

Thirty-five distinct species of snakes are known to occur within Illinois. Some of these species consist of two or more subspecies; including all the subspecies there are 50 different kinds of snakes in the state. A few subspecies are strikingly different from closely related subspecies; others differ only in such minute details as number of scales on certain parts of the body or in arrangement of head plates. The number of kinds recognized by the observant person who is not a specialist is likely to be between 35 and 50. Only four Illinois species are poisonous.

Despite a similarity in body form and method of locomotion, the snakes of Illinois are an extremely diverse group. Some species occur in every county; most, however, inhabit only limited portions of the state. Some species prefer prairie regions, some forest, and still others forest-edge or other brushy places. Some have distinctive adaptations for swimming, climbing, or burrowing; others do not. They range in size from the 10-inch black-headed snake to the 7-foot bull snake. Some kinds bite viciously; others cannot be induced to bite. Some lay eggs; others give birth to young. Some feed on only one or two other kinds of animals; others eat almost any animal they can swallow.

Credit Side of Snakes

Snakes have long been a persecuted animal group. Within the past few years, however, there has been a noticeable and commendable change in attitude toward these animals among farmers and other persons who have realized their economic value.

The most obvious service of snakes to man is their predation on destructive rodents. At least 16 kinds of Illinois snakes feed primarily on such pests as mice, rats, and ground squirrels; accordingly, they deserve protection. Their fondness for small mammals is indicated by the frequency with which racers, bull snakes, king snakes, and rat snakes are seen in old buildings, under grain shocks, and in other places favorable for rats and mice.

Twelve other kinds of Illinois snakes, mostly small species, feed on invertebrate animals, including insects and their larvae. The value of these snakes is difficult to measure because many

of them also feed on such beneficial animals as spiders and earthworms. The best known of these snakes are green snakes, brown snakes, ring-necked snakes, and worm snakes.

Approximately 10 aquatic species of Illinois snakes feed primarily on fish and frogs. They have been accused of competing with fishermen for desirable fish. Water snakes usually take the most readily available fish and thus tend to catch the slowest swimming kinds, which are least desirable to sportsmen. It should be pointed out that some fisheries biologists believe that, to improve fishing, predators should be encouraged rather than destroyed. Natural "cropping" of the fish population has been shown to result in rapid fish growth.

At least eight of the Illinois species of snakes mentioned in preceding paragraphs feed on other snakes; four of these are known to destroy poisonous species.

Debit Side of Snakes

Although fish-eating snakes probably do little or no harm to fish populations of lakes or streams, they might conceivably cause considerable damage in a fish hatchery, where small fishes are concentrated.

The larger Illinois snakes, which are effective rodent destroyers, occasionally take birds and their eggs. Ground-nesting birds suffer the greatest loss. A few kinds of snakes climb readily and thus can prey upon birds that nest in shrubs and trees. However, as stomach analyses have shown, rodent destruction outweighs the predation on birds.

Most people can trace their principal objection to snakes to the fact that they have a deeply instilled fear and dislike of these animals. Even though they know a snake to be harmless, they find it startling to step on or near a snake. Many persons can dispel this prejudice toward snakes by learning something about them. They may even find snakes fascinating animals once they overcome their fear.

Danger of Poisonous Snakes

In some rural areas where reptiles are uncommon, many of the residents have exaggerated fears of snakes. They may even believe that all large snakes are poisonous. In other areas, as in parts

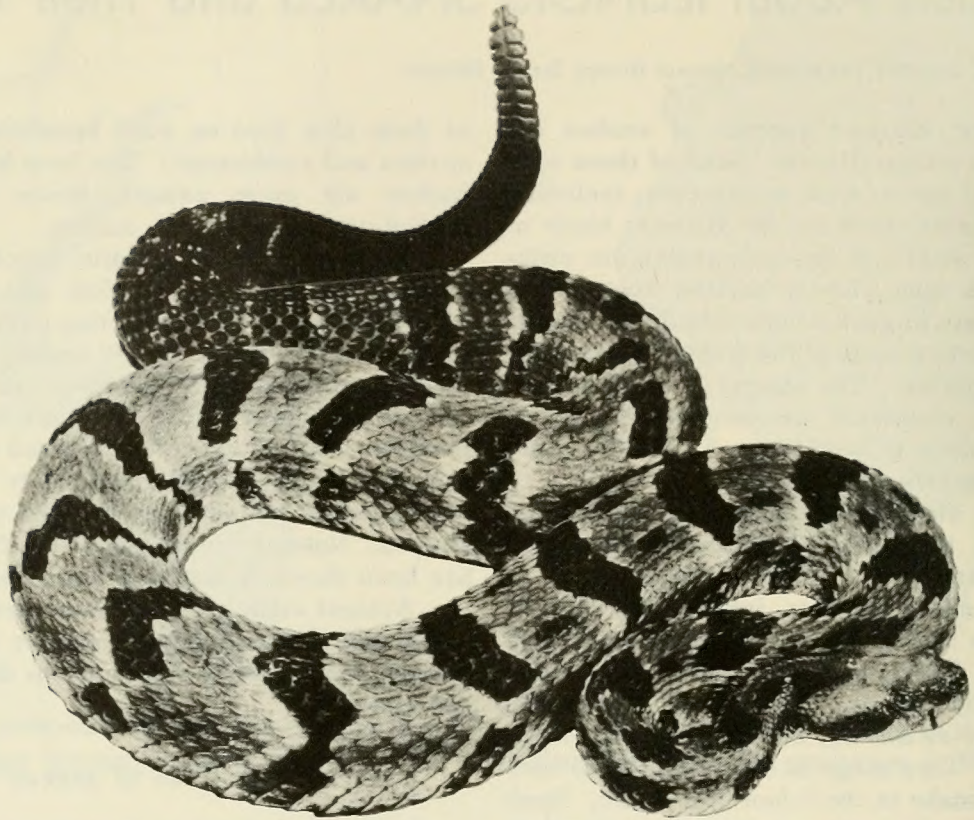


Fig. 5 - The timber rattlesnake, Crotalus horridus. This species is restricted largely to rocky, wooded regions.



Fig. 6 - The massasauga rattlesnake, Sistrurus catenatus. Colonies of this small rattler persist in a few prairie or marsh areas in the northern four-fifths of the state.



Fig. 7 - The copperhead, *Agkistrodon contortrix*. This snake, found in the southern half of Illinois, is common only in wooded, rocky areas. The specimen pictured here shows signs of injury on the back.

of southern Illinois where poisonous species are likely to be a real danger, the presence of snakes is much less alarming to the residents. Possibly this situation exists because where snakes are common the residents recognize the venomous species on sight, or it may be an illustration of the old adage that familiarity breeds contempt.

Four species of poisonous snakes, the timber rattler, the massasauga or swamp rattler, the copperhead, and the cottonmouth or water moccasin, are known to occur in Illinois. Figs. 1-4 indicate where venomous species may be found in the state. The danger of encountering poisonous snakes is actually less than is suggested by the maps, since many Illinois counties are included within the range of one or more species even though such snakes may have been exterminated from these counties many years ago.

There are infallible methods for distinguishing venomous from harmless snakes occurring in Illinois, but none of these methods is very helpful to the average individual unless the snake is dead and can be examined closely. Poisonous snakes have (1) large, movable, hollow fangs and venom glands; (2) eye pupils vertically elliptical like those of a cat; (3) a pit on each side of the head between the eye and nostril; (4) scales under the tail just like those on the belly. Nonpoisonous species have (1) teeth, but they do not have large, movable, hollow fangs and venom glands; (2) round

eye pupils; (3) no pit on the side of the head; (4) a double row of plates or scales under the tail and a single row on the belly. The size and shape of the head are not good characteristics for distinguishing poisonous from nonpoisonous snakes.

The most practical method for distinguishing the venomous snakes from the nonpoisonous consists of learning to recognize the local venomous species by the color pattern. This is done simply by examining pictures of these animals and memorizing the characteristic pattern features. In the northern half of Illinois, it is safe to assume that any snake that does not have a rattle is harmless. Three of the four poisonous snakes of Illinois are shown in figs. 5-7. The fourth, the cottonmouth or water moccasin, is shown on the cover.

Even in an area harboring poisonous snakes, there is little danger of snake bites for the person who takes a few simple precautions. (1) Recognize the poisonous species. (2) Always watch where you step and where you place your hands, particularly in rocky country where copperheads and timber rattlers occur. Almost all snake bites occur either on the hands or on the legs below the knees. (3) Carry a flashlight or lantern at night. All the Illinois poisonous snakes are nocturnal. (4) Do not handle venomous snakes. A high percentage of the snake bites in this country result from people capturing or otherwise handling these reptiles.

Snakes Believed to be Poisonous

Many nonpoisonous snakes are mistaken for poisonous species. These are the southern milk snake, fig. 8, the common water snake, fig. 9, and the fox snake, all of which are commonly mistaken for the copperhead; all species of water snakes that superficially resemble the water moccasin; and the large terrestrial snakes that vibrate their tails when alarmed and are therefore mistaken for rattlesnakes. There is a possibility that the southern milk snake might be mistaken for the poisonous coral snake, which it somewhat resembles. The coral snake probably does not occur anywhere near Illinois, however, and the milk snake is too uncommon to create much alarm.

Some nonpoisonous snakes are reputed to be dangerous, even though they are not mistaken for rattlesnakes, copperheads, or cottonmouths. The two species of hognosed snakes, one of which is shown in fig. 10, are often dreaded. These snakes are known also as "spread-heads" or "spreading vipers." Despite their impressive appearance and threatening behavior, these snakes are harmless

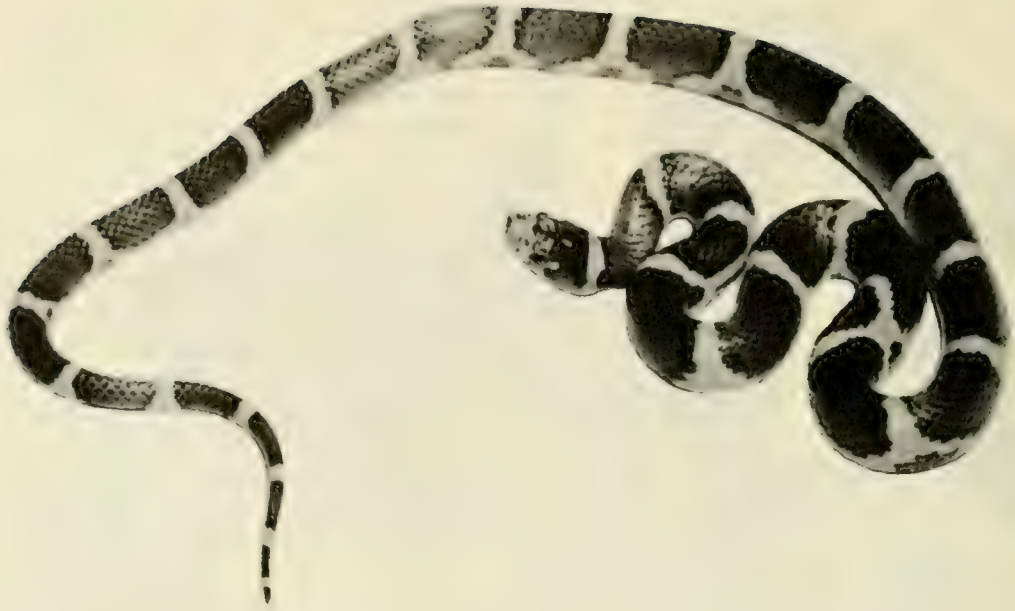


Fig. 8 - The southern milk snake, Lampropeltis triangulum sypila. Its principal resemblance to the poisonous copperhead is in its bright colors. It differs from the coral snake in having the red bands bordered with black rather than yellow.



Fig. 9 - The common water snake, Natrix sipedon. Its chief resemblance to the copperhead is in its bright markings. Its chief resemblance to the cottonmouth is in its aquatic habitat.

and even refuse to bite. In extreme southern Illinois the mud snake, also called the stinging snake, hoop snake, or horn snake, is unnecessarily feared because of the brier-like spur on the tip of its tail. This snake presses its spur against the body of the person who steps on it, but the spur contains no poison and cannot puncture the skin. In a few areas, green snakes and blue racers are incorrectly said to be dangerous.

vacant lots contain the type of trash that furnishes adequate cover for "garden" snakes. Any objects under which these snakes can crawl to hide, to escape heat or chill, to find food, or to shed their skins are likely to attract them. Third, most "garden" snakes find in these lots an adequate supply of earthworms, insects, and spiders on which they may feed.

How can snakes in such areas be eliminated?

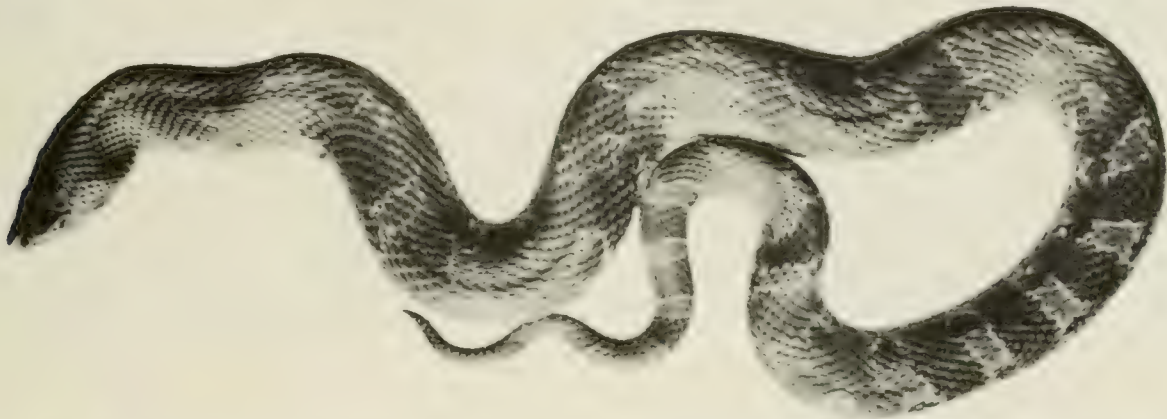


Fig. 10 - The eastern hognosed snake, Heterodon platyrhinos. The stocky body, wide head, and occasional bright markings are responsible for confusing this species with the copperhead.

Controlling the Number of Snakes

Snake eradication is difficult, but there are specific measures which can be taken to reduce the number of reptiles in an area. These measures are contingent upon some knowledge of snakes and their habits.

Most requests received by the Natural History Survey for information about snakes are concerned with exterminating these animals in gardens, shrubbery, or lawns in suburban and village areas in the northern half of Illinois. The so-called "garden" snakes are known to be harmless, but their presence is nevertheless objectionable to a large number of persons. Among the Illinois reptiles commonly known as "garden" snakes are the smooth green snake, Dekay's snake, plains garter snake, and eastern garter snake.

There are several reasons why "garden" snakes are abundant in suburban and village areas, particularly in vacant lots and along railroad rights of way. First, these snakes are predominantly prairie animals, showing preference for conditions they find in least-disturbed prairie habitats. Vacant lots and railroad rights of way furnish larger plots of relatively undisturbed prairie than do the intensively cultivated fields on farms. Second, these snakes require some form of cover. Many

All snakes depend for their food on other living animals, and they can go for weeks without eating and suffer no discomfort. The use of poisoned baits is therefore almost impossible as a means of eradicating them. Cyanide gas will kill snakes, but it is extremely dangerous to use and at best it will kill only the occasional snake that happens to be in the hole where the gas is applied. Many so-called "snake" holes are really mammal or crayfish burrows. Repellents are ineffective against snakes.

Although in the West trapping has been successfully employed in catching snakes near hibernating dens, trapping of "garden" snakes is impractical, as these animals do not congregate in great numbers to hibernate.

Snakes often fall into cisterns, basement window boxes, and steep-sided ditches, where they can be caught and destroyed, but especially built excavations large enough to serve as traps require a tremendous amount of spadework and they can be expected to catch only an occasional snake.

There is no efficient method of destroying a colony of snakes overnight. If the presence of snakes is intolerable, the size of the population can be reduced by the following procedures. Kill or remove each snake encountered; rake your lawn and garden and the ground under shrubbery; cut and



Fig. 11 - A vacant lot in Urbana, Illinois, where plains garter snakes abound. Trash furnishes an abundance of ground cover.

burn weeds along fencerows; remove such ground cover as lumber, flagstones, loose bricks, and debris. Such measures will soon make your property uninhabitable for these reptiles.

There is still the chance that an occasional snake will move into a lawn from an adjacent lot, and it may not be possible to mow or rake adjoining properties. You can move the most obvious cover objects, thereby improving the appearance of the neighborhood, or visit these objects repeatedly, destroying the snakes found under them. Contrary to general belief, a woods or brushy area is less favorable for a concentration of "garden" snakes than is a grassy lot littered with trash, such as that pictured in fig. 11.

Removal of water snakes from or near farm ponds and recreational lakes is difficult. Occasionally these snakes are caught on hooks baited with minnows, and they are sometimes caught in seines. Probably the most effective means of reducing the number of water snakes is by shooting or noosing those that bask on limbs overhanging the water and by removing logs, rocks, or other ground cover at the edge of the water. Like "garden" snakes, these reptiles often crawl under objects, and they may congregate under a particularly favorable piece of tin, where they can be easily destroyed.

There is some evidence that snake abundance is cyclic. Thus, if these animals appear to be almost everywhere one season, it is very likely that they will be fewer in number the following season

and until the next peak year. Although snakes may appear to be numerous from late March through May in most years, they are rarely seen in the summer.

It is highly recommended that all harmless snakes be tolerated, for, although some are not of much direct value to man, neither are they harmful. Wholesale slaughter of organisms has, in many cases, resulted in an unexpected disturbance in the so-called balance of nature. The methods for eradication outlined above are meant for those people who are aware that most snakes are harmless but who can have no peace of mind while sharing their lawns with them. A campaign to eradicate any animal group should be approached with caution.

Recommended Literature

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